

55. (Amended) A kit according to claim 62, wherein the polymerase is a thermostable polymerase.

57. (Amended) A kit according to claim 130, wherein the ligation agent is a ligase.

60. (Amended) A kit for detecting at least one target sequence in a sample comprising:

at least one probe set for each target sequence to be detected, each probe set comprising (a) at least one first probe, comprising a target-specific portion and a 5' primer-specific portion, and (b) at least one second probe, comprising a target-specific portion and a 3' primer-specific portion, wherein the probes in each set are suitable for ligation together when hybridized adjacent to one another on a complementary target sequence, and wherein at least one probe in each probe set further comprises an addressable support-specific portion located between the primer-specific portion and the target-specific portion; and

a primer set, the primer set comprising (i) at least one primer comprising the sequence of the 5' primer-specific portion of the first probe, and (ii) at least one primer complementary to the 3' primer-specific portion of the second probe.

61. (Amended) A kit according to claim 60, further comprising a support, the support comprising a capture oligonucleotide capable of hybridizing with the addressable support-specific portion of the at least one probe or with a sequence complementary to the addressable support-specific portion of the at least one probe.

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62. (Amended) A kit according to claim 60, further comprising a polymerase, and wherein at least one primer of the primer set further comprises a reporter group.

120. (Amended) A kit for detecting at least one target sequence in a sample comprising:

at least one probe set for each target sequence to be detected, the probe set comprising (a) at least one first probe, comprising a target-specific portion and a 5' primer-specific portion, and (b) at least one second probe, comprising a target-specific portion and a 3' primer-specific portion, wherein the probes in each probe set are suitable for ligation together when hybridized adjacent to one another on a complementary target sequence, and wherein at least one probe in each probe set further comprises an addressable support-specific portion located between the primer-specific portion and the target-specific portion;

wherein the at least one probe set comprises:

at least two different probe sets for detecting at least two different target sequences, and wherein

a first probe set comprises (a) at least one first probe, comprising a 5' primer-specific portion, a target-specific portion that hybridizes to a first portion of a first target sequence, and an addressable support-specific portion that is specific for the first target sequence, wherein the addressable support-specific portion is located between the 5' primer-specific portion and the target-specific portion, and (b) at least one second probe, comprising a target-specific portion that hybridizes to a second portion of the first target sequence, and a 3' primer-specific portion;

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a second probe set comprises (a) at least one first probe, comprising a 5' primer-specific portion, a target-specific portion that hybridizes to a first portion of a second target sequence, and an addressable support-specific portion that is specific for the second target sequence, wherein the addressable support-specific portion is located between the 5' primer-specific portion and the target-specific portion, and (b) at least one second probe, comprising a target-specific portion that hybridizes to a second portion of the second target sequence, and a 3' primer-specific portion;

and wherein the 5' primer-specific portions of each of the at least one first probes of the first and second probe sets have identical sequences.

121. (Amended) A kit for detecting at least one target sequence in a sample comprising:

at least one probe set for each target sequence to be detected, the probe set comprising (a) at least one first probe, comprising a target-specific portion and a 5' primer-specific portion, and (b) at least one second probe, comprising a target-specific portion and a 3' primer-specific portion, wherein the probes in each probe set are suitable for ligation together when hybridized adjacent to one another on a complementary target sequence, and wherein at least one probe in each probe set further comprises an addressable support-specific portion located between the primer-specific portion and the target-specific portion;

wherein the at least one probe set comprises:

at least six different probe sets for detecting at least six different target sequences, wherein each of the at least six different probe sets is specific for a different target sequence and comprises (a) at least one first probe, comprising a 5' primer-specific portion, a target-specific portion that hybridizes to a first portion of one of the at

least six different target sequences, and an addressable support-specific portion that is specific for the one of the at least six different target sequences, wherein the addressable support-specific portion is located between the 5' primer-specific portion and the target-specific portion, and (b) at least one second probe, comprising a target-specific portion that hybridizes to a second portion of the one of the at least six different target sequences, and a 3' primer-specific portion;

and wherein the 5' primer-specific portions of each of the at least one first probes of each of the at least six different probe sets have identical sequences.

122. (Amended) A kit for detecting at least one target sequence in a sample comprising:

at least one probe set for each target sequence to be detected, the probe set comprising (a) at least one first probe, comprising a target-specific portion and a 5' primer-specific portion, and (b) at least one second probe, comprising a target-specific portion and a 3' primer-specific portion, wherein the probes in each probe set are suitable for ligation together when hybridized adjacent to one another on a complementary target sequence, and wherein at least one probe in each probe set further comprises an addressable support-specific portion located between the primer-specific portion and the target-specific portion;

wherein the at least one probe set comprises:

at least two different probe sets for detecting at least two different target sequences, and wherein

a first probe set comprises (a) at least one first probe, comprising a 5' primer-specific portion, and a target-specific portion that hybridizes to a first portion of a first target sequence, and (b) at least one second probe, comprising a target-specific portion

that hybridizes to a second portion of the first target sequence, a 3' primer-specific portion, and an addressable support-specific portion that is specific for the first target sequence, wherein the addressable support-specific portion is located between the 3' primer-specific portion and the target-specific portion;

a second probe set comprises (a) at least one first probe, comprising a 5' primer-specific portion, and a target-specific portion that hybridizes to a first portion of a second target sequence, and (b) at least one second probe, comprising a target-specific portion that hybridizes to a second portion of the second target sequence, a 3' primer-specific portion, and an addressable support-specific portion that is specific for the second target sequence, wherein the addressable support-specific portion is located between the 3' primer-specific portion and the target-specific portion;

and wherein the 3' primer-specific portions of each of the at least one second probes of the first and second probe sets have identical sequences.

123. (Amended) A kit for detecting at least one target sequence in a sample comprising:

at least one probe set for each target sequence to be detected, the probe set comprising (a) at least one first probe, comprising a target-specific portion and a 5' primer-specific portion, and (b) at least one second probe, comprising a target-specific portion and a 3' primer-specific portion, wherein the probes in each probe set are suitable for ligation together when hybridized adjacent to one another on a complementary target sequence, and wherein at least one probe in each probe set further comprises an addressable support-specific portion located between the primer-specific portion and the target-specific portion;

wherein the at least one probe set comprises:

at least six different probe sets for detecting at least six different target sequences, wherein each of the at least six different probe sets is specific for a different target sequence and comprises (a) at least one first probe, comprising a 5' primer-specific portion, and a target-specific portion that hybridizes to a first portion of one of the at least six different target sequences, and (b) at least one second probe, comprising a target-specific portion that hybridizes to a second portion of the one of the at least six different target sequences, a 3' primer-specific portion, and an addressable support-specific portion that is specific for the one of the at least six different target sequences, wherein the addressable support-specific portion is located between the 3' primer-specific portion and the target-specific portion;

and wherein the 3' primer-specific portions of each of the at least one second probes of each of the at least six different probe sets have identical sequences.

124. (Amended) A kit for detecting at least one target sequence in a sample comprising:

at least one probe set for each target sequence to be detected, each probe set comprising (a) at least one first probe, comprising a target-specific portion and a 5' primer-specific portion, and (b) at least one second probe, comprising a target-specific portion and a 3' primer-specific portion, wherein the probes in each set are suitable for ligation together when hybridized adjacent to one another on a complementary target sequence, and wherein at least one probe in each probe set further comprises an addressable support-specific portion located between the primer-specific portion and the target-specific portion;

wherein the at least one probe set comprises:

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at least two different probe sets for detecting at least two different target sequences, and wherein

a first probe set comprises (a) at least one first probe, comprising a 5' primer-specific portion, a target-specific portion that hybridizes to a first portion of a first target sequence, and an addressable support-specific portion that is specific for the first target sequence, wherein the addressable support-specific portion is located between the 5' primer-specific portion and the target-specific portion, and (b) at least one second probe, comprising a target-specific portion that hybridizes to a second portion of the first target sequence, and a 3' primer-specific portion;

a second probe set comprises (a) at least one first probe, comprising a 5' primer-specific portion, a target-specific portion that hybridizes to a first portion of a second target sequence, and an addressable support-specific portion that is specific for the second target sequence, wherein the addressable support-specific portion is located between the 5' primer-specific portion and the target-specific portion, and (b) at least one second probe, comprising a target-specific portion that hybridizes to a second portion of the second target sequence, and a 3' primer-specific portion;

and wherein the 5' primer-specific portions of each of the at least one first probes of the first and second probe sets have identical sequences.

125. (Amended) A kit for detecting at least one target sequence in a sample comprising:

at least one probe set for each target sequence to be detected, each probe set comprising (a) at least one first probe, comprising a target-specific portion and a 5' primer-specific portion, and (b) at least one second probe, comprising a target-specific portion and a 3' primer-specific portion, wherein the probes in each set are suitable for

ligation together when hybridized adjacent to one another on a complementary target sequence, and wherein at least one probe in each probe set further comprises an addressable support-specific portion located between the primer-specific portion and the target-specific portion;

wherein the at least one probe set comprises:

at least six different probe sets for detecting at least six different target sequences, wherein each of the at least six different probe sets is specific for a different target sequence and comprises (a) at least one first probe, comprising a 5' primer-specific portion, a target-specific portion that hybridizes to a first portion of one of the at least six different target sequences, and an addressable support-specific portion that is specific for the one of the at least six different target sequences, wherein the addressable support-specific portion is located between the 5' primer-specific portion and the target-specific portion, and (b) at least one second probe, comprising a target-specific portion that hybridizes to a second portion of the one of the at least six different target sequences, and a 3' primer-specific portion;

and wherein the 5' primer-specific portions of each of the at least one first probes of each of the at least six different probe sets have identical sequences.

126. (Amended) A kit for detecting at least one target sequence in a sample comprising:

at least one probe set for each target sequence to be detected, each probe set comprising (a) at least one first probe, comprising a target-specific portion and a 5' primer-specific portion, and (b) at least one second probe, comprising a target-specific portion and a 3' primer-specific portion, wherein the probes in each set are suitable for ligation together when hybridized adjacent to one another on a complementary target



sequence, and wherein at least one probe in each probe set further comprises an addressable support-specific portion located between the primer-specific portion and the target-specific portion;

wherein the at least one probe set comprises:

at least two different probe sets for detecting at least two different target sequences, and wherein

a first probe set comprises (a) at least one first probe, comprising a 5' primer-specific portion, and a target-specific portion that hybridizes to a first portion of a first target sequence, and (b) at least one second probe, comprising a target-specific portion that hybridizes to a second portion of the first target sequence, a 3' primer-specific portion, and an addressable support-specific portion that is specific for the first target sequence, wherein the addressable support-specific portion is located between the 3' primer-specific portion and the target-specific portion;

a second probe set comprises (a) at least one first probe, comprising a 5' primer-specific portion, and a target-specific portion that hybridizes to a first portion of a second target sequence, and (b) at least one second probe, comprising a target-specific portion that hybridizes to a second portion of the second target sequence, a 3' primer-specific portion, and an addressable support-specific portion that is specific for the second target sequence, wherein the addressable support-specific portion is located between the 3' primer-specific portion and the target-specific portion;

and wherein the 3' primer-specific portions of each of the at least one second probes of the first and second probe sets have identical sequences.

127. (Amended) A kit for detecting at least one target sequence in a sample comprising:

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at least one probe set for each target sequence to be detected, each probe set comprising (a) at least one first probe, comprising a target-specific portion and a 5' primer-specific portion, and (b) at least one second probe, comprising a target-specific portion and a 3' primer-specific portion, wherein the probes in each set are suitable for ligation together when hybridized adjacent to one another on a complementary target sequence, and wherein at least one probe in each probe set further comprises an addressable support-specific portion located between the primer-specific portion and the target-specific portion;

wherein the at least one probe set comprises:

at least six different probe sets for detecting at least six different target sequences, wherein each of the at least six different probe sets is specific for a different target sequence and comprises (a) at least one first probe, comprising a 5' primer-specific portion, and a target-specific portion that hybridizes to a first portion of one of the at least six different target sequences, and (b) at least one second probe, comprising a target-specific portion that hybridizes to a second portion of the one of the at least six different target sequences, a 3' primer-specific portion, and an addressable support-specific portion that is specific for the one of the at least six different target sequences, wherein the addressable support-specific portion is located between the 3' primer-specific portion and the target-specific portion;

and wherein the 3' primer-specific portions of each of the at least one second probes of each of the at least six different probe sets have identical sequences.

128. (Amended) A kit for detecting at least one target sequence in a sample comprising:

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at least one probe set for each target sequence to be detected, the probe set comprising (a) at least one first probe, comprising a target-specific portion and (b) at least one second probe, comprising a target-specific portion and a primer-specific portion, wherein the probes in each set are suitable for ligation together when hybridized adjacent to one another on a complementary target sequence, and wherein at least one second probe in each probe set further comprises an addressable support-specific portion located between the primer-specific portion and the target-specific portion;

wherein the at least one probe set comprises:

at least two different probe sets for detecting at least two different target sequences, and wherein

a first probe set comprises (a) at least one first probe, comprising a target-specific portion that hybridizes to a first portion of a first target sequence, and (b) at least one second probe, comprising a target-specific portion that hybridizes to a second portion of the first target sequence, a primer-specific portion, and an addressable support-specific portion that is specific for the first target sequence, wherein the addressable support-specific portion is located between the primer-specific portion and the target-specific portion;

a second probe set comprises (a) at least one first probe, comprising a target-specific portion that hybridizes to a first portion of a second target sequence, and (b) at least one second probe, comprising a target-specific portion that hybridizes to a second portion of the second target sequence, a primer-specific portion, and an addressable support-specific portion that is specific for the second target sequence, wherein the addressable support-specific portion is located between the primer-specific portion and the target-specific portion;

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and wherein the primer-specific portions of each of the at least one second probes of the first and second probe sets have identical sequences.

129. (Amended) A kit for detecting at least one target sequence in a sample comprising:

at least one probe set for each target sequence to be detected, the probe set comprising (a) at least one first probe, comprising a target-specific portion and (b) at least one second probe, comprising a target-specific portion and a primer-specific portion, wherein the probes in each set are suitable for ligation together when hybridized adjacent to one another on a complementary target sequence, and wherein at least one second probe in each probe set further comprises an addressable support-specific portion located between the primer-specific portion and the target-specific portion;

wherein the at least one probe set comprises:

at least six different probe sets for detecting at least six different target sequences, wherein each of the at least six different probe sets is specific for a different target sequence and comprises (a) at least one first probe, comprising a target-specific portion that hybridizes to a first portion of one of the at least six different target sequences, and (b) at least one second probe, comprising a target-specific portion that hybridizes to a second portion of the one of the at least six different target sequences, a primer-specific portion, and an addressable support-specific portion that is specific for the one of the at least six different target sequences, wherein the addressable support-specific portion is located between the primer-specific portion and the target-specific portion;

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and wherein the primer-specific portions of each of the at least one second probes of each of the at least six different probe sets have identical sequences.

Please add the following new claim:

130. (New) A kit according to claim 60, further comprising a ligation agent.

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